Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2007-47

Norfolk Southern (NS)
Thomasville, Alabama
July 23, 2007

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2007-47

1.Name of Railroad Operating Train #1: Norfolk Southern Corp. [NS]	1a. Alphabetic Code: NS	1b. Railroad Accident/Incident No.: 029869
2.Name of Railroad Operating Train #2: N/A	2a. Alphabetic Code: N/A	2b. Railroad Accident/Incident No.: N/A
3.Name of Railroad Operating Train #3: N/A	3a. Alphabetic Code: N/A	3b. Railroad Accident/Incident No.: N/A
4.Name of Railroad Responsible for Track Maintenance: Norfolk Southern Corp. [NS]	4a. Alphabetic Code: NS	4b. Railroad Accident/Incident No.: 029869

5. U.S. DOT_AAR Grade Crossing Identification Number: 727699B	6. Date of Accident/Incident: Month 07 Day 23 Year 2007	7. Time of Accident/Incident: 12:30: ☐ AM ☑ PM

8. Type of Accident/Indicent (single entry in code box): 1. Derailment; 2. Head on collision; 3. Rear end collision; 4. Side collision; 5. Raking collision; 6. Broken Train collision; 7. Hwy-rail crossing; 8. RR grade crossing; 9. Obstruction; 10. Explosion-detonation; 11. Fire/violent rupture; 12. Other impacts; 13. Other (describe in narrative) — Code: 07

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
0	0	0	0	Alabama

14. Nearest City/Town	15. Milepost (to nearest tenth)	16. State Abbr	16. State Code	17. County
Thomasville	48.3	N/A	AL	CLARKE

18. Temperature (F) (specify if minus)	19. Visibility (single entry) 1. Dawn 2. Day 3.Dusk 4.Dark — Code	20. Weather (single entry) 1. Clear 2. Cloudy 3. Rain 4. Fog 5.Sleet 6.Snow — Code	21. Type of Track 1. Main 2. Yard 3. Siding 4. Industry — Code
89 F	2	1	1

22. Track Name/Number	23. FRA Track Class (1-9, X) — Code	24. Annual Track Density (gross tons in millions)	25. Time Table Direction 1. North 2. South 3. East 4. — Code
main	4	4.9	1

OPERATING TRAIN #1

26. Type of Equipment Consist (single entry) 1. Freight train 2. Passenger train 3. Commuter train 4. Work train 5. Single car 6. Cut of cars 7. Yard/switching 8. Light loco(s). 9. Maint./inspect.car	A. Spec. MoW Equip. — Code	27. Was Equipment Attended? 1. Yes 2. No — Code	28. Train Number/Symbol
	A	1	N/A

29. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	31. Method(s) of Operation (enter code(s) that apply)	31a. Remotely Controlled Locomotive?
20 MPH	E	a. ATCS; b. Auto train control; c. Auto train stop; d. Cab; e. Traffic; f. Interlocking; g. Automatic block; h. Current of traffic; i. Time table/train orders; j.Track warrant control; k. Direct traffic control; l.Yard limits; m.Special instructions; n. Other than main track; o. Positive train control; p. Other (Specify in narrative)	0 = Not a remotely controlled; 1 = Remote control portable; 2 = Remote control tower; 3 = Remote control transmitter - more than one remote control transmitter

30. Trailing Tons (gross tonnage, excluding power units): 0

Code(s): j | N/A | N/A | N/A | N/A — 31a: 0

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	ET090001SJ	1	yes
(2) Causing (if mechanical cause reported)	0	0	N/A

33. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
N/A	N/A

34. Was this consist transporting passengers? (Y/N): N/A

35. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

36. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	0	0	1	0	0
(2) Total Derailed	0	0	0	0	0

37. Equipment Damage This Consist: 28500

38. Track, Signal, Way, & Structure Damage: 0

39. Primary Cause Code: H997

40. Contributing Cause Code: M302

Number of Crew Members

41. Engineer/ Operators	42. Firemen	43. Conductors	44. Brakemen
1	0	0	0

Length of Time on Duty

45. Engineer/Operator: Hrs 6 Mi 30

46. Conductor: Hrs 0 Mi 0

Casualties to:	47. Railroad Employees	48. Train Passengers	49. Other
Fatal	0	0	0
Nonfatal	1	0	0

50. EOT Device? 1. Yes 2. No — 2

51. Was EOT Device Properly Armed? 1. Yes 2. No — N/A

52. Caboose Occupied by Crew? 1. Yes 2. No — N/A

OPERATING TRAIN #2

53. Type of Equipment Consist (single entry) 1. Freight train 2. Passenger train 3. Commuter train 4. Work train 5. Single car 6. Cut of cars 7. Yard/switching 8. Light loco(s). 9. Maint./inspect.car	A. Spec. MoW Equip. — Code	54. Was Equipment Attended? 1. Yes 2. No — Code	55. Train Number/Symbol
	N/A	N/A	N/A

56. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	58. Method(s) of Operation (enter code(s) that apply)	58a. Remotely Controlled Locomotive?
0 MPH	N/A	a. ATCS; b. Auto train control; g. Automatic block; h. Current of traffic; m.Special instructions; n. Other than main track	0 = Not a remotely controlled; 1 = Remote control portable

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57. Trailing Tons (gross tonnage, excluding power units): N/A

c. Auto train stop; d. Cab; e. Traffic; f. Interlocking; i. Time table/train orders; j.Track warrant control; k. Direct traffic control; l.Yard limits; o. Positive train control; p. Other (Specify in narrative) Code(s): N/A N/A N/A N/A N/A

2 = Remote control tower
3 = Remote control transmitter - more than one remote control transmitter: N/A

59. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	0	0	N/A
(2) Causing (if mechanical cause reported)	0	0	N/A

60. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
N/A	N/A

61. Was this consist transporting passengers? (Y/N): N/A

62. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

63. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

64. Equipment Damage This Consist: 0

65. Track, Signal, Way, & Structure Damage: 0

66. Primary Cause Code: N/A

67. Contributing Cause Code: N/A

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
0	0	0	0

Length of Time on Duty

72. Engineer/Operator: Hrs 0 Mi 0

73. Conductor: Hrs 0 Mi 0

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	0	0	0
Nonfatal	0	0	0

77. EOT Device? 1. Yes 2. No: N/A

78. Was EOT Device Properly Armed? 1. Yes 2. No: N/A

79. Caboose Occupied by Crew? 1. Yes 2. No: N/A

OPERATING TRAIN #3

80. Type of Equipment Consist (single entry): 1. Freight train 2. Passenger train 3. Commuter train 4. Work train 5. Single car 6. Cut of cars 7. Yard/switching 8. Light loco(s). 9. Maint./inspect.car A. Spec. MoW Equip. Code: N/A

81. Was Equipment Attended? 1. Yes 2. No Code: N/A

82. Train Number/Symbol: N/A

83. Speed (recorded speed, if available) Code: R - Recorded; E - Estimated: N/A MPH N/A

84. Trailing Tons (gross tonnage, excluding power units): N/A

85. Method(s) of Operation (enter code(s) that apply): a. ATCS; b. Auto train control; c. Auto train stop; d. Cab; e. Traffic; f. Interlocking; g. Automatic block; h. Current of traffic; i. Time table/train orders; j.Track warrant control; k. Direct traffic control; l.Yard limits; m.Special instructions; n. Other than main track; o. Positive train control; p. Other (Specify in narrative) Code(s): N/A N/A N/A N/A N/A

85a. Remotely Controlled Locomotive? 0 = Not a remotely controlled; 1 = Remote control portable; 2 = Remote control tower; 3 = Remote control transmitter - more than one remote control transmitter: N/A

86. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	N/A	N/A	N/A
(2) Causing (if mechanical cause reported)	N/A	N/A	N/A

87. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
N/A	N/A

88. Was this consist transporting passengers? (Y/N): N/A

89. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

90. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

91. Equipment Damage This Consist: N/A

92. Track, Signal, Way, & Structure Damage: N/A

93. Primary Cause Code: N/A

94. Contributing Cause Code: N/A

Number of Crew Members

95. Engineer/ Operators	96. Firemen	97. Conductors	98. Brakemen
N/A	N/A	N/A	N/A

Length of Time on Duty

99. Engineer/Operator: Hrs N/A Mi N/A

100. Conductor: Hrs N/A Mi N/A

Casualties to:	101. Railroad Employees	102. Train	103. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

104. EOT 1. Yes 2. No: N/A

105. Was EOT Device Properly 1. Yes 2. No: N/A

106. Caboose Occupied by Crew? 1. Yes 2. No: N/A

Highway User Involved

107. A. Auto B. Truck C. Truck-Trailer. D. Pick-Up Truck E. Van F. Bus G. School Bus H. Motorcycle J. Other Motor Vehicle K. Pedestrian M. Other (spec. in narrative) Code: C

108. Vehicle Speed (est. MPH at impact): 10

109. geographical) 1.North 2.South 3.East 4.West Code: 3

Rail Equipment Involved

111. Equipment 1.Train(units pulling) 2.Train(units pushing) 3.Train (standing) 4.Car(s) (moving) 5.Car(s) (standing) 6.Light Loco(s) (moving) 7.Light(s) (standing) 8.Other (specify in narrative) Code: 8

112. Position of Car Unit in: 1

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110. Position	Code	113. Circumstance	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	3	1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	1
114a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither	4	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither	4

114c. State here the name and quantity of the hazardous materials released, if any.
N/A

115. Type Crossing Warning	1.Gates	2.Cantilever FLS	3.Standard FLS	4.Wig Wags	5.Hwy. traffic signals	6.Audible	7.Crossbucks	8.Stop signs	9.Watchman	10.Flagged by crew	11.Other (spec. in narr.)	12.None
Code(s)	07	08	N/A	N/A	N/A	N/A	N/A					

116. Signaled Crossing (See instructions for codes)	Code	117. Whistle 1. Yes 2. No 3. Unknown	Code
	N/A		2

118. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	Code	119. Crossing Warning with Highway Signals 1. Yes 2. No 3. Unknown	Code	120. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown	Code
	1		2		2

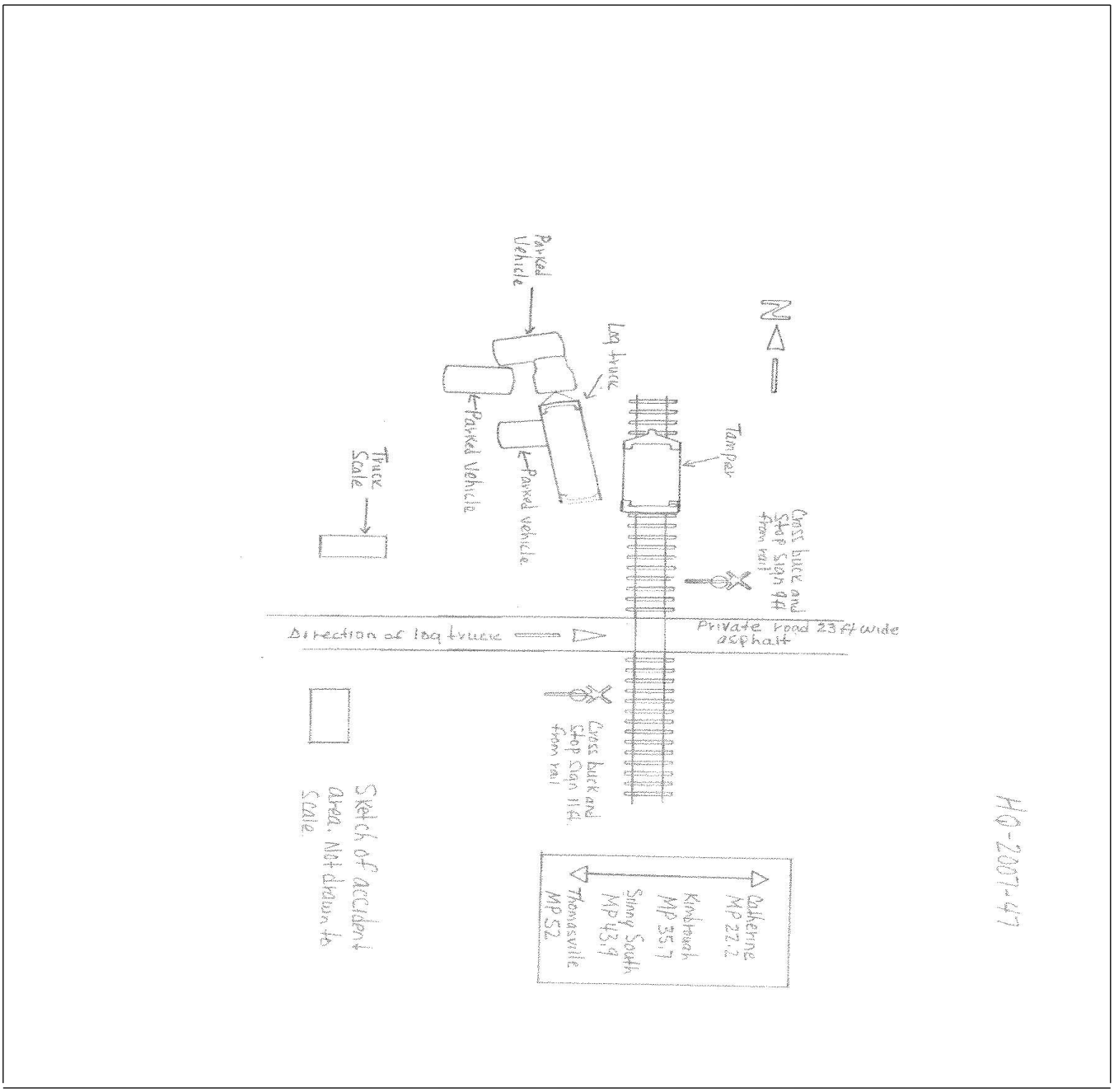
121. Age	122. Driver's Gender 1. Male 2. Female	Code	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other (specify in narrative)	Code
40		1		2		3

125. Driver Passed Highway Vehicle 1. Yes 2. No 3. Unknown	Code	126. View of Track Obscured by (primary obstruction) 1. Permanent Structure 2. Standing Railroad Equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicle 7. Other (specify in narrative) 8. Not obstructed	Code
	2		8

Casualties to:	Killed	Injured	127. Driver 1. Killed 2.Injured 3. Uninjured	Code	128. Was Driver in the Vehicle? 1. Yes 2. No	Code
				3		1
129. Highway-Rail Crossing Users	0	0	130. Highway Vehicle Property Damage (est. dollar damage)	15000	131. Total Number of Highway-Rail Crossing Users (include driver)	1

132. Locomotive Auxiliary Lights? 1. Yes 2. No	Code	133. Locomotive Auxiliary Lights Operational? 1. Yes 2. No	Code
	2		N/A
134. Locomotive Headlight Illuminated? 1. Yes 2. No	Code	135. Locomotive Audible Warning Sounded? 1. Yes 2. No	Code
	1		1

136. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED.



137. SYNOPSIS OF THE ACCIDENT

On July 23, 2007, about 12:30 p.m. Central Standard Time (CST), northbound Norfolk Southern (NS) Maintenance of Way (M of W) Mark III Tamper, which was operating on the NS main track, struck a tractor/trailer truck that was operating over a private highway-rail grade crossing. The accident occurred near Thomasville, Alabama (AL) at milepost (MP) NS 48.3 on the NS Alabama Division.

The tractor/trailer truck was loaded with logs and was traveling east on the private road crossing when it was struck by the tamper. The tamper was operated by an NS track machine operator (operator) and was traveling north on the NS main track at an estimated speed of 20 miles per hour (mph) when the impact occurred. As a result of the collision, the tractor/trailer struck three parked unoccupied automobiles. After the collision, the operator was transported by ambulance to Southwest Alabama Medical Center in Thomasville. He was examined and released. The tractor/trailer driver refused treatment. The crossing was protected by cross bucks and a stop sign.

There was no track or signal damage. Damage to the tamper is estimated at $28,500. At the time of the accident, it was daylight and sunny with a temperature of 89 °F.

Probable Cause

The operator of the Mark III Tamper did not approach the private highway grade crossing prepared to stop. He should not have entered the road crossing unless he knew the way was clear.

Contributing Cause

Highway user inattentiveness.

138. NARRATIVE

Circumstances Prior to the Accident

The NS track foreman and the Mark III Tamper operator went on duty on July 23, 2007, at 6 a.m. at Thomasville. The NS ballast regulator operator arrived for duty at 6:20 a.m. These employees comprise the NS M of W surfacing gang SM 303. Gang SM 303 consists of two M of W on track rail bound machines, the Mark III Tamper ET 90001 SJL, a Kershaw Model 46 ballast regulator, and a track foreman. The employees held a job and safety briefing before departing Thomasville.

About 12:20 p.m., the Mark III Tamper and ballast regulator departed Thomasville MP 52 northbound on the NS Alabama Division en route to their work site at Lamison MP 29. They were occupying the main track using an NS joint occupancy authority. The tamper was the lead machine and was being operated in the forward direction. The ballast regulator, operated by the supervisor, was traveling about a half mile behind the tamper. The operator that runs the ballast regulator was driving the company vehicle to the work location.

Approaching the accident site from the south beginning at MP 49 there is a 600 ft. 2-degree right-hand curve with 2-inch elevation. For the next 500 feet the track is tangent, followed by a 2-degree left-hand curve with 2-inch elevation. The main track is tangent for the next 700 feet, followed by a 2-degree right- hand curve with 2-inch elevation. NS timetable speed for freight trains at this location is 49 mph, but the speed limit for the M of W machines is restricted to 30 mph.

Private Highway Grade Crossing

The crossing consists of a rubber inlaid and asphalt surface and is 23 feet wide and intersects the track at 90-degrees. The private road approaching the crossing has an asphalt surface that extends 14 feet approaching from the west and 38 feet from the east. The cross buck and stop sign, located on the east side of the track is nine feet from the nearest rail. The cross buck and stop sign located at the west side of the track is 11 feet from the nearest rail. The site distance from the cross buck and stop sign on the west side of the track where the log truck was initially parked looking south is about 1,950 feet. NS has a whistle post in place about 1,400 feet both south and north of the crossing.

The NS timetable direction and geographic direction are the same and run north and south.

The Accident

According to the tamper operator, he was traveling northbound on main track about 20 mph as he approached the accident area. The operator said he began sounding the horn as the tamper approached the whistle post sign governing the private road crossing about 1,400 feet south of the crossing. His view of the crossing was unobstructed as he came around a right-hand curve south of the crossing still blowing the machine's horn. He noticed a fork lift traveling west to east over the crossing and applied the tamper brakes. He could also see a tractor/trailer log truck parked near the southwest quadrant of the road crossing. The operator said once the forklift cleared the crossing, he released the machine brakes and accelerated to 20 mph. When the tamper was about 250 feet from the road crossing, the log truck started moving over the crossing. He

applied the brakes, but could not stop the tamper in time. He estimated that four or five seconds elapsed between the time the truck started to move and the collision.

The front buggies of the tamper struck the cab of the truck in the passenger side, forcing it north and west of the main track. The tractor/trailer rolled parallel to the track, a distance of 75 feet, where it struck three parked automobiles. The tamper traveled north about 78 feet after impact, but did not derail. The buggies and boom located on the front of the tamper were compressed and forced up and over the front of the tamper engine compartment. After the tamper stopped, the operator went to check the truck driver and attempted to notify the NS dispatcher via the radio of the collision. The track foreman arrived within minutes of the collision and also radioed the dispatcher confirming the accident. According to the operator, the accident occurred about 12:30 p.m.

Thomasville City Police arrived at the scene about 12:39 p.m. An ambulance from Southwest Alabama Medical Center in Thomasville arrived about 12:40 p.m. The operator was taken by ambulance to the Southwest Alabama Medical Center where he was examined and released. The driver of the truck refused medical treatment.

Analysis and Conclusion

Analysis

The operator was drug tested under NS company rules at Southwest Alabama Medical Center. The result of the test was negative.

According to the Thomasville City Police report, the driver of the log truck was a 69-year old male. He is employed by Andress Trucking Company. Thomasville Lumber Company owns the property on both sides of the private road crossing located at MP 48.3. This private crossing is used daily and truck drivers regularly park their truck at the southwest quadrant to remove tie down straps and chains that secure their loads. There was no toxicology test given to the truck driver by the Thomasville City Police Department.
The tamper is equipped with amber color strobe type headlights and a horn. The operator said approaching the crossing the headlights were on and the horn was sounding.

On July 24, NS performed a mechanical test on the Mark III Tamper, which included a brake inspection, a maximum speed test, and a running brake test. The purpose of the test was to determine if the brake system was functioning properly. Federal Railroad Administration (FRA) was not present for these tests. According to NS, the maximum speed obtained during the maximum speed test was 26.5 mph. No exceptions were taken to the brake inspection and running brake test.

NS operating rule 815 that pertains to M of W employees states, "On-Track equipment approaching a highway grade crossing must be prepared to stop short and must not enter the crossing until the way is known to be clear. Equipment must not be operated over a crossing protected by manually-operated gates or by a watchman until gates are down or watchman is in position to protect movement."

FRA conducted a records inspection to see if the NS operator was qualified to operate the Mark III Tamper. The NS records revealed he was not qualified on that particular machine.

Alabama State Motor Vehicle and Traffic Law Section 32-5A-150 states in part, "Whenever any person driving a vehicle approaches a railroad grade crossing under any circumstances, in this section, the driver of such vehicle shall stop within 50 feet but not less than 15 feet from the nearest rail of such railroad and shall not proceed until he can do so safely." However, the Alabama uniform traffic police official that investigated the accident did not issue a citation to the truck driver.

While investigating this accident, FRA observed several log trucks entering and exiting the lumber company, which the private road crossing services. These trucks enter from the main highway and proceed to a scale located on the west side to the private road crossing. After weighing their load, the drivers will pull off the road to a spot located about 40 feet from the southwest quadrant of the crossing to untie their loads. They then proceed over the private crossing to unload the logs.

FRA believes in this case, the truck driver partially contributed to the accident. After the truck driver untied his load and reentered the truck's cab, he should have seen the railroad's road crossing warning signs posted directly in his forward view. Secondly, this private crossing is used predominately by these log trucks and the drivers are familiar with the crossing protection. If he pulled forward and stopped for the cross buck and stop sign, he would have noticed the approaching tamper and not proceeded over the crossing.

Conclusion

The operator was not in compliance with M of W operating rule 815, nor was he qualified to operate the Mark III Tamper.

Probable Cause

The operator of the Mark III Tamper did not approach the private highway grade crossing prepared to stop. He should not have entered the road crossing unless he knew the way was clear.

Contributing Cause

Highway user inattentiveness.

Fatigue Analysis
Analysis

FRA obtained fatigue related information, including a 10-day work history, for an NS machine operator involved in this highway grade crossing accident. If the employee did not provide sleep information, the default setting of Excellent was used. FRA concluded fatigue was not probable for the machine operator operating the Mark III Tamper.

1. Roadway Worker assigned to On Track Equipment

Sleep setting (Excellent, Good, Fair, or Poor) Excellent
Overall effectiveness = 93%
Lapse Index = 1.0
Reaction Time = 107%
Chronic Sleep Debt = 3.26
Hours of Continuous Wakefulness = 8.10
Time of Day (military) 12:35
BAC Equivalent = <0.05
FRA concluded fatigue was not probable.